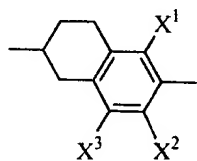
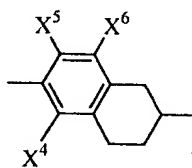


(wherein, R represents a saturated or unsaturated alkyl group or alkoxyl group of 1 to 20 carbon atoms which may incorporate a branched chain and may be substituted with 1 to 7 fluorine atoms or alkoxyl groups of 1 to 7 carbon atoms; the linkage groups La, Lb, Lc and Ld each represent independently a single bond, $-\text{CH}_2\text{CH}_2-$, $-\text{CH}=\text{CH}-$, $-\text{CH}(\text{CH}_3)\text{CH}_2-$, $-\text{CH}_2\text{CH}(\text{CH}_3)-$, $-\text{CH}(\text{CH}_3)\text{CH}(\text{CH}_3)-$, $-\text{CF}_2\text{CF}_2-$, $-\text{CF}=\text{CF}-$, $-\text{CH}_2\text{O}-$, $-\text{OCH}_2-$, $-\text{OCH}(\text{CH}_3)-$, $-\text{CH}(\text{CH}_3)\text{O}-$, $-\text{C}^\circ\text{C}$, CF_2O , OCF_2 , COO , OCO , COS or SCO ; Z represents a fluorine atom, chlorine atom, cyano group, cyanato group, trifluoromethoxy group or a difluoromethoxy group; ring A, ring B and ring D each represent independently a trans-1,4-cyclohexylene group, trans-decahydronaphthalene-2,6-diyl group, trans-1,3-dioxane-2,4-diyl group, or a 1,4-phenylene group which may be substituted with one or two fluorine atoms, pyridine-2,5-diyl group, pyrimidine-2,5-diyl group, pyrazine-2,5-diyl group, a pyridazine-3,6-diyl group, and a naphthalene-2,6-diyl group which may be substituted with one or two fluorine atoms; ring E represents independently a 1,4-phenylene group which may be substituted with one or two fluorine atoms, and a naphthalene-2,6-diyl group which may be substituted with one or two fluorine atoms; ring C represents either the general formula (IIa) or the general formula (IIb)



(IIa)



(IIb)

a1 (wherein, X^1 , X^2 , X^3 , X^4 , X^5 and X^6 each represent independently a hydrogen atom or a fluorine atom); and n^a , n^b , n^c and n^d each represent independently either 0 or 1.

Please replace the paragraph beginning at page 9, line 18, with the following rewritten paragraph:

R2 Invention 22: A tetrahydronaphthalene derivative according to any one of Inventions 1 through 21 which forms a nematic phase.

Please replace the paragraph beginning at page 10, line 4, with the following rewritten paragraph:

R3 Invention 27: An active matrix driven liquid crystal display element utilizing a liquid crystal composition according to Invention 25.

Please replace the paragraph beginning at page 10, line 16 and ending at page 14, line 20, with the following rewritten paragraph:

a4 Examples of the group R include straight chain saturated alkyl groups such as a methyl group, ethyl group, propyl group, butyl group, pentyl group, hexyl group, heptyl group, octyl group, nonyl group, decyl group, undecyl group, dodecyl group, tridecyl group, tetradecyl group, pentadecyl group, hexadecyl group, heptadecyl group, octadecyl group, nonadecyl group and an eicosyl group; branched saturated alkyl groups such as a 1-methylethyl group, 1-methylpropyl group, 2-methylpropyl group, 1,2-dimethylpropyl group, 1-methylbutyl group, 2-methylbutyl group, 3-methylbutyl group, 1,2-dimethylbutyl group, 1,3-dimethylbutyl group, 2,3-dimethylbutyl group, 1-

methylopentyl group, 2-methylopentyl group, 3-methylopentyl group, 4-methylopentyl group, 1,2-dimethylopentyl group, 1,3-dimethylopentyl group, 1-methylhexyl group, 2-methylhexyl group, 3-methylhexyl group, 4-methylhexyl group, 5-methylhexyl group, 1,2-dimethylhexyl group, 1,3-dimethylhexyl group, 1-methylheptyl group, 2-methylheptyl group, 3-methylheptyl group, 4-methylheptyl group, 5-methylheptyl group, 6-methylheptyl group, 1,2-dimethylheptyl group, 1,3-dimethylheptyl group, 1-methyloctyl group, 2-methyloctyl group, 3-methyloctyl group, 4-methyloctyl group, 5-methyloctyl group, 6-methyloctyl group, 7-methyloctyl group, 1,2-dimethyloctyl group, 1,3-dimethyloctyl group, 1-methylnonyl group, 2-methylnonyl group, 3-methylnonyl group, 4-methylnonyl group, 5-methylnonyl group, 6-methylnonyl group, 7-methylnonyl group, 8-methylnonyl group, 1,2-dimethylnonyl group, 1,3-dimethylnonyl group, 1-methyldecyl group, 2-methyldecyl group, 3-methyldecyl group, 1,2-dimethyldecyl group, 1,3-dimethyldecyl group, 1-methylundecyl group, 2-methylundecyl group, 3-methylundecyl group, 1,2-dimethylundecyl group, 1,3-dimethylundecyl group, 1-methyldodecyl group, 2-methyldodecyl group, 3-methyldodecyl group, 1,2-dimethyldodecyl group, 1,3-dimethyldodecyl group, 1-methyltridecyl group, 2-methyltridecyl group, 3-methyltridecyl group, 1,2-dimethyltridecyl group and a 1,3-dimethyltridecyl group; unsaturated alkyl groups such as a vinyl group, trans-1-propenyl group, 2-propenyl group, trans-1-butenyl group, trans-2-butenyl group, 3-butenyl group, trans-1-pentenyl group, trans-2-pentenyl group, trans-3-pentenyl group, 4-pentenyl group, trans-1-hexenyl group, trans-2-hexenyl group, trans-3-hexenyl group, trans-4-hexenyl group, 5-hexenyl group, trans-1-heptenyl group, trans-2-heptenyl group, trans-3-heptenyl group, trans-4-heptenyl group, trans-5-heptenyl group, 6-heptenyl group, trans-1-octenyl group, trans-2-octenyl group, trans-3-octenyl

group, trans-4-octenyl group, trans-5-octenyl group, trans-6-octenyl group, 7-octenyl group, trans-1-nonenyl group, 8-nonenyl group, trans-1-decenyl group, 9-decenyl group, trans-1-undecenyl group, 10-undecenyl group, trans-1-dodecenyl group, 11-dodecenyl group, ethynyl group, 1-propynyl group, 2-propynyl group, 1-butynyl group, 2-butynyl group, 3-butynyl group, 1-pentynyl group, 2-pentynyl group, 3-pentynyl group, 4-pentynyl group, 1-hexynyl group, 2-hexynyl group, 3-hexynyl group, 4-hexynyl group, 5-hexynyl group, 1-heptynyl group, 2-heptynyl group, 3-heptynyl group, 4-heptynyl group, 5-heptynyl group, 6-heptynyl group, 1-octynyl group, 2-octynyl group, 3-octynyl group, 4-octynyl group, 5-octynyl group, 6-octynyl group, 7-octynyl group, 1-nonyl group, 8-nonyl group, 1-decynyl group, 9-decynyl group, 1-undecynyl group, 10-undecynyl group, 1-dodecynyl group, 11-dodecynyl group, 1-tridecynyl group and a 12-tridecynyl group; fluorine substituted alkyl groups such as a fluoromethyl group, difluoromethyl group, trifluoromethyl group, 2-fluoroethyl group, 2,2-difluoroethyl group, 2,2,2-trifluoroethyl group, 1,1,2,2,2-pentafluoroethyl group, 3-fluoropropyl group, 2-fluoropropyl group, 1-fluoropropyl group, 3,3-difluoropropyl group, 3,3,3-trifluoropropyl group, 2,2,3,3-tetrafluoropropyl group, 2,2,3,3,3-pentafluoropropyl group, 1,1,2,2,3,3,3-heptafluoropropyl group, 4-fluorobutyl group, 3-fluorobutyl group, 2-fluorobutyl group, 1-fluorobutyl group, 4,4-difluorobutyl group, 4,4,4-trifluorobutyl group, 3,3,4,4-tetrafluorobutyl group, 3,3,4,4,4-pentafluorobutyl group, 2,2,3,3,4,4,4-heptafluorobutyl group, 5-fluoropentyl group, 4-fluoropentyl group, 3-fluoropentyl group, 2-fluoropentyl group, 1-fluoropentyl group, 5,5-difluoropentyl group, 5,5,5-trifluoropentyl group, 4,4,5,5-tetrafluoropentyl group, 4,4,5,5,5-pentafluoropentyl group, 3,3,4,4,5,5,5-heptafluoropentyl group, 6-fluorohexyl group, 5-fluorohexyl group, 4-fluorohexyl group, 3-fluorohexyl group, 2-fluorohexyl group, 1-fluorohexyl group, 6,6-

ay
0092633-12301

difluorohexyl group, 6,6,6-trifluorohexyl group, 5,5,6,6,6-pentafluorohexyl group, 4,4,5,5,6,6,6-heptafluorohexyl group, 7-fluoroheptyl group, 6-fluoroheptyl group, 5-fluoroheptyl group, 4-fluoroheptyl group, 3-fluoroheptyl group, 2-fluoroheptyl group, 1-fluoroheptyl group, 7,7-difluoroheptyl group, 7,7,7-trifluoroheptyl group, 6,6,7,7-tetrafluoroheptyl group, 6,6,7,7,7-pentafluoroheptyl group, 5,5,6,6,7,7,7-heptafluoroheptyl group, 8-fluorooctyl group, 7-fluorooctyl group, 6-fluorooctyl group, 5-fluorooctyl group, 4-fluorooctyl group, 3-fluorooctyl group, 2-fluorooctyl group, 1-fluorooctyl group, 8,8-difluorooctyl group, 8,8,8-trifluorooctyl group, 7,7,8,8-tetrafluorooctyl group, 7,7,8,8,8-pentafluorooctyl group and a 6,6,7,7,8,8,8-heptafluorooctyl group; fluorine substituted unsaturated alkyl groups such as a 2,2-difluoroethenyl group, (E)-1,2-difluoroethenyl group, (Z)-1,2-difluoroethenyl group, 3,3-difluoro-2-propenyl group, (E)-2,3-difluoro-2-propenyl group, (Z)-2,3-difluoro-2-propenyl group, 4,4-difluoro-3-butenyl group, (E)-3,4-difluoro-3-butenyl group, (Z)-3,4-difluoro-3-butenyl group, 5,5-difluoro-4-pentenyl group, (E)-4,5-difluoro-4-pentenyl group, (Z)-4,5-difluoro-4-pentenyl group, 6,6-difluoro-5-hexenyl group, (E)-5,6-difluoro-5-hexenyl group, (Z)-5,6-difluoro-5-hexenyl group, (E)-1,2-difluoro-1-propenyl group, (E)-1,2-difluoro-1-butenyl group, (E)-1,2-difluoro-1-pentenyl group, (E)-1,2-difluoro-1-hexenyl group, (Z)-1-fluoro-1-propenyl group, (Z)-1-fluoro-1-butenyl group, (Z)-1-fluoro-1-pentenyl group, (Z)-1-fluoro-1-hexenyl group, (Z)-2-fluoro-1-propenyl group, (Z)-2-fluoro-1-butenyl group, (Z)-2-fluoro-1-pentenyl group, (Z)-2-fluoro-1-hexenyl group, (E)-2,3-difluoro-2-butenyl group, (E)-2,3-difluoro-2-pentenyl group, (E)-2,3-difluoro-2-hexenyl group, (Z)-2-fluoro-2-butenyl group, (Z)-2-fluoro-2-pentenyl group, (Z)-2-fluoro-2-hexenyl group, (Z)-3-fluoro-2-butenyl group, (Z)-3-fluoro-2-pentenyl group and a (Z)-3-fluoro-2-hexenyl group; alkoxyl group substituted alkyl groups such as a

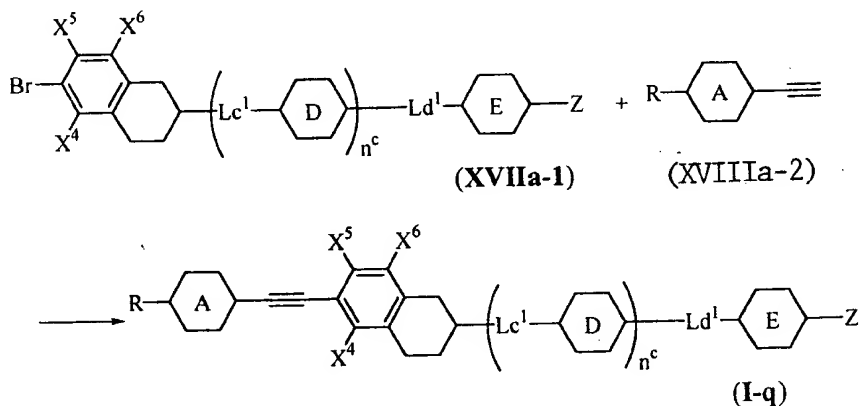
methoxymethyl group, ethoxymethyl group, propoxymethyl group, butoxymethyl group, pentyloxymethyl group, hexyloxymethyl group, heptyloxymethyl group, 1-methoxyethyl group, 1-ethoxyethyl group, 1-propoxyethyl group, 1-butoxyethyl group, 1-pentyloxyethyl group, 1-hexyloxyethyl group, 1-heptyloxyethyl group, 2-methoxyethyl group, 2-ethoxyethyl group, 2-propoxyethyl group, 2-butoxyethyl group, 2-pentyloxyethyl group, 2-hexyloxyethyl group, 2-heptyloxyethyl group, 1-methoxypropyl group, 1-ethoxypropyl group, 1-propoxypropyl group, 1-butoxypropyl group, 1-pentyloxypropyl group, 1-hexyloxypropyl group, 1-heptyloxypropyl group, 2-methoxypropyl group, 2-ethoxypropyl group, 2-propoxypropyl group, 2-butoxypropyl group, 2-pentyloxypropyl group, 2-hexyloxypropyl group, 2-heptyloxypropyl group, 3-methoxypropyl group, 3-ethoxypropyl group, 3-propoxypropyl group, 3-butoxypropyl group, 3-pentyloxypropyl group, 3-hexyloxypropyl group, 3-heptyloxypropyl group, 4-methoxybutyl group, 4-ethoxybutyl group, 4-propoxybutyl group, 4-butoxybutyl group, 4-pentyloxybutyl group, 4-hexyloxybutyl group, 4-heptyloxybutyl group, 5-methoxypentyl group, 5-ethoxypentyl group, 5-propoxypentyl group, 5-butoxypentyl group, 5-pentyloxypentyl group, 5-hexyloxypentyl group, 5-heptyloxypentyl group, 6-methoxyhexyl group, 6-ethoxyhexyl group, 6-propoxyhexyl group, 6-butoxyhexyl group, 6-pentyloxyhexyl group, 6-hexyloxyhexyl group and a 6-heptyloxyhexyl group; and the alkoxyl groups thereof, although alkyl groups are preferred. Of such alkyl groups, straight chain saturated alkyl groups and unsaturated alkyl groups are preferred, and particularly desirable groups include a methyl group, ethyl group, propyl group, butyl group, pentyl group, hexyl group, heptyl group, octyl group, vinyl group, trans-1-propenyl group, 2-propenyl group, trans-1-butenyl group, trans-2-butenyl group, 3-butenyl group, trans-1-pentenyl group, trans-2-pentenyl group, trans-3-pentenyl group, 4-pentenyl

a4
group, trans-1-hexenyl group, trans-2-hexenyl group, trans-3-hexenyl group, trans-4-hexenyl group, 5-hexenyl group, trans-1-heptenyl group, trans-2-heptenyl group, trans-3-heptenyl group, trans-4-heptenyl group, trans-5-heptenyl group, and a 6-heptenyl group.

Please replace the paragraph beginning at page 108, line 5, with the following rewritten paragraph:

a5
The lithium or magnesium reagent represented by the general formula (Va-1) is a compound frequently used in liquid crystal production, and can be easily produced from the corresponding halide or the like.

Please replace the paragraph beginning at page 124, line 1, with the following rewritten paragraph:



a6 (wherein, R, X⁴, X⁵, X⁶, the ring A, the ring D, the ring E and Z have the same meaning as described above for the general formula (I), and Lc¹ and Ld¹ represent a single bond or a CH₂CH₂-.)

Please replace the paragraph beginning at page 153, line 13, with the following rewritten paragraph:

a7
099266330-122801
A mixture of 50 g of the 2-propyl-1,2,3,4-tetrahydronaphthalen-6-yl trifluoromethanesulfonate obtained in (7-2), 33.9 g of (3,4,5-trifluorophenyl)acetylene, 3.6 g of tetrakis(triphenylphosphine) palladium(0), and 51.4 g of potassium phosphate in 200 ml of DMF was stirred for 10 hours at 80°C. The mixture was subsequently cooled to room temperature, water was added, the mixture was extracted with toluene, and the organic layer was washed subsequently with water and a saturated aqueous solution of sodium chloride, and subsequently dried over anhydrous sodium sulfate. The crude product obtained by removal of the solvent by evaporation was purified by silica gel column chromatography (hexane) and then recrystallized 3 times from ethanol to obtain 32.6 g of 2-propyl-6-(3,4,5-trifluorophenyl)ethynyl-1,2,3,4-tetrahydronaphthalene.

Please replace the paragraph beginning at page 160, line 14, with the following rewritten paragraph:

a8
Consequently, addition of 20% of the compound (I-1-2) enabled the fall in the nematic phase upper limit temperature (T_{N-I}) to be limited to 44°C, while the threshold voltage (V_{th}) could be reduced by 0.37 V. In addition, the increase in the response time could be suppressed to 8 ms. Furthermore, even after standing for 1 week at 0°C, crystal precipitation did not occur. Moreover, when the composition was crystallized by rapid cooling and the melting point (T_{C-N}) was then

a8 measured, it was found to be 13°C, which is almost the same as the host liquid crystal (H), indicating that the compound (I-1-2) dissolves readily in the host liquid crystal.

Please replace the paragraph beginning at page 162, line 11, with the following rewritten paragraph:

a9 Next, a liquid crystal element was prepared by using the composition (M-3) to fill a TN cell with a cell thickness of 6.0 μm , and measurement of the electrooptical characteristics of the element revealed the values shown below.

Please replace the paragraph beginning at page 162, line 17, with the following rewritten paragraph:

a10 Consequently, addition of 20% of the compound (I-3-2) enabled the fall in the nematic phase upper limit temperature (T_{N-I}) to be limited to 46°C, while the threshold voltage (V_{th}) could be reduced by 0.33 V. In addition, the increase in the response time could be suppressed to 9 ms. Furthermore, even after standing for 1 week at 0°C, crystal precipitation did not occur. Moreover, when the composition was crystallized by rapid cooling and the melting point (T_{C-N}) was then measured, it was found to be 12°C, which is almost the same as the host liquid crystal (H), indicating that the compound (I-3-2) dissolves readily in the host liquid crystal.